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NEPTUNE.

Observations.

Professor Chevallier says, " The accompanying observations of *Neptune* have been made by Mr. R. A. Thompson, the observer at the Durham Observatory, and have been completely reduced.

" The meridian observations in right ascension, with the exception of those of Aug. 7 and Oct. 18, were well taken: the meridian observations in north polar distance have been made under unfavourable circumstances.

" The observations with the equatoreal were made with a telescope by Fraunhofer, of about eight feet focal length, and above six inches aperture, with a position wire-micrometer.

" Each comparison consists of one observation of difference of north polar distance, and of observations of two, or three, and, on Aug. 14, of four wires, for difference of right ascension.

" The star of comparison from Aug. 7 to Aug. 31, and on Sept. 2, was 38 *Aquarii.* On Sept. 1, 3, 4, the comparisons were made with 38 and 40 *Aquarii:* afterwards with 40 *Aquarii* only.

" The places of the stars of comparison have been computed from the British Association Catalogue, meridian observations of those stars having shewn that those positions are very nearly correct.

" All the observations are corrected for the effects of refraction and parallax, assuming the horizontal equatoreal parallax to be 0″·3; and the results are compared with Mr. Adams's ephemeris of *Neptune* given in the *Monthly Notices* of the Royal Astronomical Society."

Durham. Meridian. {Professor Chevallier & Mr. R. A. Thompson.

1847.	Greenwich M. T.	R.A.	Obs^{d}—Calc^{d}.	N.P.D.	Obs^{d}—Calc^{d}.	Remarks.
	h m s	h m s	s	° ′ ″	″	
July 22	14 13 49	22 8 19·78	−0·33	102 6 50·6	+5·8	
Aug. 7	13 9 25	6 49·18	1·52	15 13·5	−4·3	R.A. only on one wire; approximate.
13	12 45 13	6 13·47	0·30	18 46·7	+2·9	
19	12 21 2	5 36·18	0·29	22 10·1	−2·4	
Sept. 2	11 24 31	4 8·69	0·55			Just visible.
3	20 29	4 2·70	0·42	30 58·4	+7·8	
4	11 16 27	3 56·60	0·43	31 28·4	+4·4	
16	10 28 6	2 46·40	0·57	37 53·8	+6·4	
20	10 12 1	2 24·74	0·53	39 47·6	+2·4	
Oct. 8	8 59 52	1 2·11	0·52	47 7·4	−1·5	
18	8 20 0	0 29·01	1·04	50 3·1	+2·6	Not good; cloudy.
27	7 44 18	22 0 9·65	−0·79	102 51 42·0	+0·7	

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Equatoreal.

1847.	Greenwich M.T.	R.A.	Obsd—Calcd.	N.P.D.	Obsd—Calcd.	No. of Comps.	Remarks.
	h m s	h m s	s	° ′ ″	″		
Aug. 7	11 26 57	22 6 50·46	−0·27	102 15 16·7	+1·2	1	
9	12 15 33	38·21	0·25	16 23·8	−1·0	5	
13	11 23 40	13·83	0·30	18 43·8	+2·0	7	
14	10 18 42	6 7·94	0·28	19 12·8	−2·2	7	
19	13 19 45	5 35·77	0·44	22 11·9	−2·1	4	
23	14 16 32	10·45	0·41	24 35·1	−0·6	7	
24	9 23 18	5 5·42	0·42	25 2·1	−1·5	3	Faint; not good.
31	10 25 10	4 21·44	0·41	29 10·6	+3·3	7	Faint; not good.
Sept. 1	11 37 3	14·79	0·57	29 44·7	+1·6	6	
2	12 1 17	8·63	0·46	30 16·3	−1·4	2	Very faint; uncertain.
3	11 37 2	4 2·66	0·39	30 50·4	−0·5	11	
4	11 47 59	3 56·55	0·34	31 29·0	−0·8	9	
10	13 14 34	19·82	0·81	34 43·8	−0·1	5	
13	11 50 33	3 3·18	0·39	36 18·7	+1·6	7	
14	8 52 28	2 58·07	0·51	36 44·2	−0·1	8	
20	10 55 24	2 24·56	0·54	39 46·0	0·0	7	
28	8 35 49	1 44·97	0·44	43 19·6	−0·2	6	
Oct. 21	9 31 49			50 37·4	−3·2	4	
27	8 41 37	0 9·53	0·84	51 40·7	−1·0	6	
28	7 54 2	8·28	0·57	51 47·3	−2·0	6	Haze; Planet faint.
Nov. 2	5 38 44	22 0 1·60	1·32	52 18·8	0·0	2	Obs. incomplete in R.A.
9	7 34 12	21 59 58·92	−0·90	102 52 30·4	−0·1	8	

HAMBURG. Meridian Circle. (M. Rümker.)

1847.	Hamburg M.T.	R.A.	Decl.
	h m s	° ′ ″	° ′ ″
Sept. 26	9 41 44·9	330 28 32·6	−12 42 32·8
27	37 44·2	27 21·3	43 0·0
28	33 43·4	26 6·9	43 24·9
Oct. 3	13 41·5	20 31·4	45 27·5
4	9 9 41·7	330 19 31·7	−12 45 45·4

POONA. (Capt. Jacob, B.E.)

1847.	Poona M.T.	Planet—Star.		Star of Comparison.	
		R.A.	Decl.		
	h m	m s	′ ″		
April 28	17 0	+2 56·6	+2 57	Weisse, xxii.	123
29	16 59	0 52·55	−1 13·7	——	173
30	17 7	0 56·8	−0 53·7	——	173
May 3	16 40	1 8·8	+0 6·0	——	173
4	17 6	1 12·3	+0 24·2	——	173
5	17 2	1 15·8	+0 41·7	——	173
12	16 51	1 37·0	+2 27·2	——	173
13	16 51	1 39·6	+2 38·8	——	173
July 27	11 20	1 22·6	−5 25·1	——	123
Aug. 15	10 11	0 14·6	+0 29·6	——	105
17	10 53	+3 20·5	−2 22·7	38 *Aquarii.*	

Longitude of Poona, $4^h\ 55^m\ 45^s$ East.

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LASSELL'S SATELLITE OF NEPTUNE.

Observations.

STARFIELD. (Mr. Lassell.)

Greenwich M.T.							
1846.							
Oct.	10				Satellite seen for the first time Position estimated 60° n.f.		
Nov.	11			——	45 s.p.		
	30			——	45 s.p.		
Dec.	3			——	50 n.f.	Distance	3 diameters
1847.							
July	7			——	50 n.f.		
	8			——	60 n.f.		
	22	13^h	0^m	——	40 s.p.	——	1¼ diameters
	25	12	40	——	45 n.f.	——	3
	26			——	50 n.f.		
Aug.	1	11	24	——	40 n.f.	——	4
	3	12	12	——	70 s.p.	——	2
	7	10	30	——	40 n.f.	——	3
	10	11	42	——	40 s.p.	——	2
	14				No satellite visible.		
	18	11	12	——	45° n.f.	——	3
	31	9	30	——	20 n.f.	——	1
		11	30	——	5 n.f.	scarcely	1
Sept.	2	12	6	——	50 s.p.		
	3			——	5 or 10° s.p.	sc.	1 diam.
	4	11	30	——	30 or 40 n.f. (very unfavourable)		
	6	9	0	——	a little n.f. (very unfavourable)		
	8	11	6	measured	45°·6 s.p.	Dist. measured	15″67
	9			estimated	10 n.p.	(unfavourable)	
	13			measured	60°·4 s.p.	Dist. measured	16″0
	14			——	41·78 s.p.		
	28	8	30	——	53·25 n.f.	——	16·0
	29	8	15	——	37·05 n.f.	——	13·4
Oct.	2	8	54	——	24·63 s.p.	——	10·7
	10	10	42	——	48·85 n.f.		
	13	8	18	——	44·78 s.p.	——	16·40
	14	7	48	——	29·92 s.p.	——	9·84
	16	8	12	——	47·09 n.f.	——	18·20
	21	7	30	——	60·95 n.f.		
Nov.	1	8	0		Satellite scarcely visible; seen nearly north		
	8	7	42	——	55°·38 n.f.	Dist. measured	14″27
	9	7	30	——	42·61 n.f.	——	13·82

"The above observations were made with the 20-feet equatoreal and position and distance micrometer; powers, 205, 323, and 400. There being no apparatus for illuminating the wires, sufficient light to see them was necessarily introduced into the field."

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Cambridge, U.S. (Professor W. C. Bond.)

"1847, Oct. 25^{d} 7^{h} 45^{m}. The satellite is south preceding the planet 40°. Distance, $15''\cdot4$. The latter is the mean of three observations, of which the extreme difference is $1''\cdot4$. The angle of position is liable to some uncertainty. Power, 300. The above were taken in bright moonlight.

"Oct. 27^{d} 7^{h} 30^{m}. The satellite is north following 61° 30′. Distance, $13''\cdot7$. Powers, 300 and 1000. The power of 1000 seems to have the advantage in the distinctness with which the satellite is seen. The positions and distance are the mean of six determinations by two observers. Extreme difference of position, 1° 30′. Ditto of distance, $2''\cdot7$.

"Oct. 28^{d} 7^{h} 45^{m}. Satellite is n.f. 43° 15′. Distance, $15''\cdot0$. Mean of nine observations, by two observers. Extreme difference of positions, 4°; ditto of distance, $1''\cdot4$. Powers, 400 and 1000. We have pretty strong evidence of the existence of another satellite, fainter and more distant from the primary than Lassell's.

"The above were obtained with the illuminated wires of the micrometer of the 23-foot refractor; aperture, 15 inches.[*] The object is one of extreme difficulty to measure with precision."

MISS MITCHELL'S COMET.

This comet was seen in America, on October 1, by Miss Maria Mitchell, of Nantucket,[†] and was observed at the Observatory of Cambridge, U. S. October 7. It was seen October 3, at Rome, by Father De Vico; October 7, by Mr. Dawes, with the naked eye, at Cranbrook; and October 11, by Mrs. Rümker, at Hamburg.

Mr. Dawes says that, on October 7, he remarked it "as a hazy star of the fifth magnitude, near ω *Draconis*. Examination with the $8\frac{1}{2}$-foot refractor proved it to be a large comet, its rapid motion being speedily detected. On the 11th, it had the light of a star of the fourth magnitude, near η *Herculis*. The nebulosity in the telescope extended over 30′, nearly round, much condensed in the centre, but without stellar nucleus. A star of the tenth magnitude (Herschel's fourteenth) was distinctly seen through the exact centre of the comet."

[*] The Cambridge U.S. equatoreal is $22^{f}\,8^{i}$ focal length, and 15 inches aperture: it is by the same artist, of the same size, and upon the same construction, as the equatoreal of Poulkova. It stands on a very massive pier, which is insulated. The covering dome is 30 feet in diameter, revolving on eight cannon balls. An observing chair, of a novel construction, gives the observer complete command over his position. When the eye-piece is properly adjusted, there is no colour, except a purple tinge round very bright objects, such as *Venus* or the moon.

The telescope readily separates such stars as γ *Coronæ*, γ^2 *Andromedæ*, and Struve's "Vicinissimæ." The nebula, 27 *Messier* in *Vulpecula*, and the great nebula in *Orion*, are resolved into bright stars; the latter in the vicinity of the trapezium. There is no appearance of a ring to *Neptune* when viewed with high powers, though with lower powers there seems to be an elongation.

[†] This information comes from Professor W. C. Bond, of the Cambridge Observatory, U. S.